Student Name: **Stud id:** **Sect#:** **#:**

University of Bahrain College of Information Technology

Department of Computer Science

ITCS332: Organization of Programming Languages **QUIZ#3: Chapter 16_LP**

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1) Name 2 kinds of Prolog statements: *fact* and *rule*

2) In prolog, computations are performed by *is* operator and unification is done by = operator.

3) The two approaches of matching a given goal to a fact in a database are :

   forward chaining and *backward chaining*

4) The prolog query: `?- X is 24/3, X = 8.` produces: *X = 8*

5) The prolog query: `?- X = ali,Y = isa,[B|A]=[[Y,20,16],[X,13,2016]].` produces:

   A = *[[ali, 13, 2016]].*

   B = *[isa, 20, 16]*

```
taz([],[]).
taz([H1,H2|T],[HR|TT]):- HR is H1 rem H2, taz(T,TT).
```

6) The Prolog query: *taz([5,3,11,2,9,-5,-9,6],U)*.produces:

   U = [2, 1, 4, -3].

7) Write prolog predicate(s) to accepts a list of numbers and displays the cube of the last element .

```
?- cubeLast([3,4,5],M).
   M = 125
?- cubeLast([3,4,5,0,6,-2],X).
   X = -8
```

```
%%  Finding last number in a list
last([X],D):- D is X.
last([_|T],D):- last(T,R),D is R.

%%  Cube the last element in a list of numbers.
cubeLast([X],U):- U is X * X * X.
cubeLast([_|T],R):- last(T,Y),R is Y*Y*Y.
```

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8) Prolog operates in *entry* or *query* modes.

9) A Prolog statement consists of terms which may be: *variables* or *atoms*

10) A clausal form of propositions contains *conjunction* operators in its right side and *disjunction* operators in its left side.

11) The prolog query: `?- U = 15, U is 20-5.` produces: *U = 15*

```
taz2([],[]).
taz2([H1,H2|T],[HR|TT]):- HR is H2 rem H1, taz2(T,TT).
```

12) The Prolog query: *taz2([5,3,8,13,9,-15,-17,29],ME)*.produces:

ME = [3, 5, -6, 12].

13) The prolog query: `?- X = may,Y = feb,[A|B]=[[Y,25,15],[X,31,2019]].` produces:

A = *[feb, 25, 15]*

B = *[[may, 31, 2019]]*

14) Write prolog predicate(s) to accepts a list of numbers and displays the double of the last element .

```
?- doubleLast([3,4,5],U).
   U = 10
?- doubleLast([3,4,5,0,6,-2],T).
   T = -4
```

```
%%  Finding last number in a list
last([X],D):- D is X.
last([_|T],D):- last(T,R),D is R.

%%  Double the last element in a list of numbers.
doubleLast([X],U):- U is X * X.
doubleLast([_|T],R):- last(T,Y),R is Y*Y.
```